CLAIMS

1. An aqueous aluminum brazing composition which comprises a zinc-based flux, an organic binder, and (meth)acrylic acid/(meth)acrylate copolymer emulsion as a precipitation inhibitor in an amount of 0.03-1.50 wt% of 100 wt% of the brazing composition, the brazing composition having a thixotropic index calculated by dividing a logarithm of viscosity of the brazing composition measured at 25°C and 10 rpm by a logarithm of viscosity of the brazing composition measured at 25°C and 100 rpm by using an EH-type viscometer of 1.01-1.20.

2. The brazing composition according to claim 1, wherein the zinc-based flux is a K-Zn-F-type zinc fluoride.

3. The brazing composition according to claim 1 or 2, further comprising metal silicon powder as a brazing filler metal.

4. The brazing composition according to any of claims 1 to 3, further comprising a reaction inhibitor which inhibits a reaction between zinc and a carboxyl group in the organic binder or the precipitation inhibitor.

5. The brazing composition according to claim 4, wherein the reaction inhibitor is an amino alcohol having a boiling point of 120-200°C.

6. An aluminum material coated with a brazing composition which is produced by applying the brazing composition according to any of claims 1 to 5 to the aluminum material and drying the brazing composition, thereby causing a dried residual component in the brazing composition to adhere to a surface of the aluminum material.

7. The aluminum material according to claim 6, wherein an average thickness and a maximum thickness of a film of the brazing composition are respectively 2-15 μm and 30 μm or less.

8. The aluminum material according to claim 6 or 7, wherein an average particle diameter of the zinc-based flux is 30 μm or less.

9. An aluminum brazing method comprising assembling the aluminum material according to any of claims 6 to 8 into a specific structure, and heating the structure to a brazing temperature to form a zinc diffusion layer on the surface of the aluminum material.

10. An automotive heat exchanger manufactured by using the brazing method according to claim 9.